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Puerperal Scarlatina.

Thesis for degree of M.D.

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Puerperal Scarlatina; with cases.

Puerperal Fever has at all times been a subject of the greatest interest to the obstetrician. It is clear why this should be so when we consider that a physiological function naturally attended with little risk to life is by this added element rendered not less fatal than diseases like typhus or smallpox.

In approaching the study of puerperal fever early observers were much influenced by current theories of disease and they had no hesitation in classing it as a specific fever along with the other zymotics. In course of time it began to be noticed that the symptoms grouped under the name puerperal fever arose in various ways, sometimes following lesions at first purely local, at other times being closely associated with smallpox, scarlet fever &c. Within the last twenty or thirty years also our increased knowledge of septic and infective processes has been brought to bear on the subject and now the doctrine of the specific nature of puerperal fever has been generally abandoned.

Long before this conclusion had been reached, however, scarlatina had been recognised as occurring in puerperal women. In 1799, an epidemic of malignant scarlatina occurred among the patients of the Vienna Lying-in Hospital, and an account of it was published by Malfatti in Hufeland's Journal. During the course of the century many writers have contributed articles on the subject, quoting series of cases occurring in hospital and in

Obstetrical Transactions Vol. XVII P. 103.

Dublin Quart. Journ. Med. Sciences 1866 P. 63

private practice. Numerous important discussions have also been held in the different societies from time to time, and in these ways the opinion of the medical profession has declared itself that scarlet fever is one of the most serious complications that can arise during the puerperal period. Thus Prof. Leishman says,- "There is nothing in practice that we dread so much." Dr McClintock of Dublin says,- "By physicians generally, such a complication of the puerperal state is regarded with profound dread."

Its important bearing upon the work of the general practitioner is obvious. He is in attendance every day upon women during and after their confinement. During each year he is also called upon to see numerous cases of scarlatina. Each duty is unavoidable, yet he cannot help feeling that ~~than~~ in spite of the utmost care this indirect association is fraught with elements of danger to his puerperal patients. No apology is needed, therefore, in entering upon the consideration of the subject. One cannot hope to throw any new light upon it but the small number of cases which I have had the opportunity of seeing may be of value as showing how the disease manifests itself when seen in the wards of a fever hospital.

Before considering the symptoms in detail a few general questions present themselves for solution.

Its Nature. What is the essential nature of the affection as we see it occurring? The views held upon this point are various and conflicting and really involve the whole question of the aetiology of puerperal fever. They may perhaps be resolved into

* Denham	8 cases,	mortality	12½ %
Braxton Hicks	18 "	"	22 %
M'Clintock	34 "	"	29·7 %
Coll. Inv. Record	13 "	"	30·7 %
Olshausen	134 "	"	48 %
Halahan	25 "	"	76 %

three distinct theories.

1. That scarlatina attacking a puerperal woman produces nothing but scarlatina as seen in other adults; that it "breeds true", is derived from previous cases of scarlatina, and may prove a source whence other patients are infected with the ordinary disease.

Undoubtedly the disease may take this form and may run a perfectly usual course. Numerous such cases are reported, notably several series by Boxall, Brown, and Leopold Meyer.

But a glance at the statistics shows at once that this is only half a truth, and that it cannot for a moment be considered as a satisfactory estimate of the facts as we see them. The mortality of scarlet-fever in adults, excluding puerperal women, is very low, probably in most epidemics well under 5%. That of scarlet fever* in puerperal ~~fever~~ women is enormous, reaching in some instances 75%.

2. That the poison which in others produces scarlet-fever, when absorbed by a puerperal patient produces or becomes changed into true puerperal fever, but being passed on again to non-pregnant patients reassumes its ordinary characters. Some authorities have further held that this puerperal fever thus derived from scarlet fever may be conveyed to other lying-in women and in them also set up puerperal fever.

This view has certainly more to recommend it than the first. Numbers of cases have been described in which severe puerperal fever has occurred without the symptoms of scarlet-fever

Braxton Hicks. Obstet. Trans. Vol. XII pp. 75 et seq.
Atthill quoted by Galabin, Manual of Midwifery P. 769.

being noticeable but where scarlet fever has either been present in the house at the time or has developed shortly afterwards. Braxton Hicks describes nine such cases. Atthill gives the following,- "On May 16th. 1875, a patient died of scarlet fever in the Rotunda Hospital, having suffered from the disease a few days before she died. The sanitary condition of the hospital was previously good, but on the 17th. there were two deaths from puerperal fever, followed by seven more between that date and June 3rd." The literature of the subject is full of such cases if more were required to give an apparent sanction to this view.
But the whole tendency of modern thought on the nature of the specific fevers is against such an explanation. Probably there are few such cases which cannot be explained as instances of the modification of scarlet fever in accordance with the third theory.
It is also to be remembered that, in severe cases of scarlet fever, in addition to the specific febrile process, there are others going on. In a case where there is extensive ulceration of the fauces, septic otitis media, or suppurating cervical glands, there cannot but be various septic poisons present in large amount. If a puerperal woman be closely associated with such a patient it is conceivable that she may prove insusceptible to the scarlet fever but may become infected by one or other of the septic poisons present. In this way she may develop a septic puerperal fever. This seems to offer a possible explanation of the cases given by Atthill. Through it all, it may be added, she

may in a merely mechanical way convey scarlet infection to her children.

3. That puerperal scarlatina is true scarlatina occurring in a puerperal woman and in most cases greatly modified in its symptoms and in its results by this added factor.

This seems to be the view now most generally held and the one which affords the most satisfactory solution of the difficulty. I have no hesitation in saying that this theory is the correct one and that viewing cases in this light we shall find fewest facts left unexplained.

That scarlatina should be modified in its course and symptoms when it occurs in a puerperal woman is not to be wondered at. During pregnancy there is a profound alteration of the whole economy and the processes of absorption of nutriment and elimination of waste products are doubled in their activity. But is after delivery that the greatest strain is thrown upon the system. The function of providing nutriment for the young life is transferred at once from the uterus to the mammary glands. At the same time the processes of elimination are taxed to accomplish in a few days the return of the enlarged uterus to its non-pregnant condition. We find this period, then, one of increased susceptibility and diminished resistance. Causes, such for example as torpor of the bowels or a slight exposure to cold, which in other women do little harm, produce here serious disturbances usually accompanied by febrile symptoms. If, therefore, instead of these a factor more potent for evil be introduced in the shape of scarlatinal

infection, it is but natural that the disturbance should be profound and that the weakened forces of resistance should often prove insufficient and fail under the strain.
A graver and more complex condition is also seen. Septic processes only too readily arise in the genital canal and absorption of the products is followed by serious constitutional effects. If to these be added the scarlatinal poison it is rare that the organism has resistance sufficient to overcome the double enemy and such cases are among the most dreadful that we ever have to cope with.

As regards modification during the puerperium it may be interesting to compare scarlatina with smallpox and erysipelas. Smallpox appears to be very little modified when it attacks a woman in childbed; its most striking features all assert themselves and there is nowhere found a report of cases in which, for instance, the rash was absent. With erysipelas it is quite the opposite. It shows a special tendency to lose its distinctive characters and to produce what is, to all appearance, simply a severe type of puerperal fever. This is admitted by many of those who deny the occurrence of similarly "masked" cases of scarlatina. Thus scarlet fever may be held to occupy a position midway between smallpox and erysipelas. It frequently, like smallpox, runs a normal course unaffected by the puerperal condition; less often it becomes, like erysipelas, considerably modified.

Playfair advances the opinion that a different mode of entry of the poison into the system may

produce a difference in the type of disease resulting. He suggests that in some cases the infection is conveyed directly to the genital tract by the attendant and that in this way a disease altogether different from scarlet fever may be produced. In a similar way it has been found that erysipelas in a puerperal patient starting from the vagina presents more of the puerperal character than when its point of origin is elsewhere, as on the face.

We know so little of the mode of action of the scarlatinal poison that it is not possible to say whether there is anything in this view or not, but it is hardly in accord with our usual conception of scarlatina as a general or constitutional disease.

Viewing puerperal scarlatina then, in the light of this third theory, as scarlatina liable to modification by its occurrence in a patient whose economy is for the time profoundly altered, I proceed to the consideration of other questions.

Frequency. One of the most striking facts in connection with this disease is its comparative rarity. As a terrible complication of the puerperal state it is a condition which must always make a great impression upon the mind of any practitioner seeing it occur among his patients. In spite of this there are apparently few medical men who can recall many cases. Thus, a busy practitioner in Glasgow tells me that after attending between three and four thousand confinements he has only once seen scarlatina occurring in the puerperium. Another, after

Archiv. für Gynäkologie. 1876. Translated in Obstet. Journal, vol. IV

having had charge of at least five thousand puerperal women, states that he has never seen a single case. In the Glasgow Maternity Hospital, with its large numbers of patients, ten years at a time have passed without any case developing in the House. In connection with Guy's Hospital Lying-in Charity, 25000 confinements were attended in ten years and only three cases were noted. Again, for two years no such case was admitted to the Kennedy St. Fever Hospital, although during that time over 3000 cases of scarlet fever were admitted.

The rarity of the affection is also evinced by the comparative scantiness of the literature of the subject. Medical literature abounds in records of puerperal fever; such cases occur in great numbers every year. But the recorded cases of puerperal scarlatina amount at most to a few hundreds in the century. Thus Olshausen, writing in 1876, was only able to collect 146 cases, five of which he had himself seen. In the Collective Investigation Record of 1884, out of 354 cases of puerperal fever, only 13 were scarlatina.

Again, puerperal scarlatina does not occur in epidemics, properly so called. It is true that when scarlet infection gains access to a lying-in hospital several cases may occur together, but it is easily stamped out by isolation and disinfection. Still it does not happen that in a whole town or district for a space of weeks or months every parturient woman is in imminent danger of contracting scarlet fever. When the disease

is raging among the general population there are doubtless rather more cases seen among puerperal women than at other times but apart from this there are no periods of special danger to them.

Susceptibility. The question of frequency is directly related to that of susceptibility. In approaching it, it has to be remembered that scarlatina has not the virulence of smallpox, which in an unprotected community strikes down practically everyone who is exposed to its infection. Of those exposed to scarlatinal infection only a relatively small number take the disease. More than this, a large proportion of the adult population is protected by a previous attack and even when this is not the case it has been clearly shewn that the liability to take scarlet fever diminishes as adult life is reached. Thus the susceptibility of the non-pregnant woman is undoubtedly slight, and if a numerical estimate of the risk were attempted, it could reasonably be affirmed that, out of 100 women brought into contact with scarlet fever, only two or three at most would contract the disease.

With regard to puerperal women, a very much smaller class, it is in the nature of things impossible to appeal to statistics. Cases certainly do occur not rarely where a puerperal woman is exposed to the infection and escapes unharmed. But the conviction of the profession undoubtedly is that during the puerperium the liability to take scarlet fever is greatly increased.

Whether the same applies to pregnant women

Galabin. British Med. Journ. April 1887.

Obstet. Journal Vol. IV

is not so clear; it has even been asserted by some that the converse is the case and that the liability is diminished. Thus Galabin is of opinion that "in pregnancy there appears to be unusual immunity." Olshausen, while able to collect 134 cases occurring within one week after delivery, found records of only 7 occurring in pregnancy. Probably the susceptibility of pregnant women while greater than that of non-pregnant, is much less than that of puerperal patients.

Another point brought out by Olshausen is that primiparae are more predisposed to the disease than multiparae; of the former he found 62, of the latter only 42. He considers this sufficiently accounted for by the primiparae being as a rule younger and probably in greater proportion protected by previous attacks. These reasons seem hardly enough to account for such a marked preponderance of primiparae, but in this connection there may be remembered the greater frequency in primiparae of other puerperal complications.

Some light is thrown upon the question of susceptibility by the occurrence of certain cases. In these for some weeks or it may be months the pregnant woman is exposed more or less constantly to the infection of scarlet-fever but remains unaffected. Her period comes round and a few days after delivery she sickens with Scarlet fever. Such is the history of Case VIII. Here it would appear that although the woman's system is burdened by the demands

Obstet. Trans. Vol. XII

Obstet. Trans. Vol. XXX p. 48.

of advancing pregnancy, she is able to resist the infective power of the disease until after delivery when the sudden alteration in the economy brings with it increased susceptibility.

Incubation. In another class of cases the point raised is slightly different. In these, exposure to infection occurs some weeks or months before labour and no other source of subsequent infection is known. If such patients develop scarlet fever during the puerperium how are we to regard them? (Case III might be classed among such and others are quoted by Braxton Hicks) Are we to consider that in these patients there is a period in which the disease remains latent, or that the period of incubation is capable of almost indefinite prolongation? Olshausen argues in favour of the latter hypothesis and suggests an analogy with the frequent latency of malarial fevers, but a direct negative is well maintained by Boxall. Such an idea is indeed quite at variance with all our knowledge of scarlet fever at other times and very positive evidence would be required to afford it adequate support. But the evidence is scanty and is almost entirely negative. Many cases of ordinary scarlet fever cannot be traced to any ascertained source of infection, and where the only known occasion of exposure of a lying-in woman has occurred some weeks or months before it is too much to assume that the period of incubation has been prolonged. A more probable explanation seems to me to be that infective material may have lingered in the surroundings of the patient and that she

*Trousseau. Clinical Medicine. N. S. Soc. Trans. Vol. II. p. 166.

Bristowe. Theory & Practice of Medicine. 6th. edition p. 167.

Lehrbuch der Geburtshülfe. 1891. P. 834.

has become infected afresh at the puerperal period. Though other cases do not permit of this explan-ation there seems no sufficient proof that in pregnant women the incubation period is prolonged.

With regard to the converse - shortening of the incubation - it has been asserted that it is frequent. But when we remember that in ordinary scarlet fever this period may not exceed 24 hours,* there remains little scope for shortening. It is at all times difficult to fix the date of infection and I have not been able to see in my cases any evidence of such alteration in the duration of incubation.

<u>Date of Onset</u>. This is usually early in the puerperium, the majority occurring in the first three days. Thus Olshausen found 8 patients attacked immediately after labour, 62 others on the first and second day, 27 on the third, and 22 after the third, but none later than the 8th. Case <u>VIII</u> therefore was exceptional as occurring on the 11th day; all the others were attacked during the first week.

<u>Course and Symptoms</u>.

The utmost variety of opinion has always prevailed with regard to these. Much of this is evidently due to generalization from the small number of cases which come under the observation of any one man, much from a failure to properly realize the fact so well put by Bristowe, that "no known disease is more unequal in its attacks than scarlet fever."

A few examples of these divergent opinions may be given. Thus Olshausen and Veit say, - "In the

Manual of Midwifery. 1893. P768.

Étude sur la Scarlatine chez les femmes en couche, quoted by Boxall.

Discussion reported Obstet. Trans. Vol XXX p. 174.
(italics are his.)

Do. do. p. 181.

Quoted by Williams, Obstet. Trans. Vol. XXX p. 183.

majority of cases neither does scarlet fever influence the puerperium nor the reverse."
Dr Galabin says. - "The peculiarity in puerperal women is that the sore throat is almost always slight but yet the mortality is high."
Legendre states that "in this condition scarlatina very often deviates from the normal type."
Dr Horrocks holds "that scarlatina generally produces in the puerpera a disease unlike ordinary scarlet fever..... and that in rare instances scarlatina may produce in the puerpera a disease presenting, for the most part, the usual symptoms of scarlet fever."
Dr Chalmers asserted "that where scarlet fever assailed the mother it never, according to his experience ran its natural course."

Appealing from opinions to facts, it is abundantly clear that scarlatina in the puerpera is not always a simple scarlatina and that alone, else how could a mortality of 50 to 75 per cent. be found in some series. But it is also apparent that in very many cases the disease runs the ordinary course of scarlet fever, little if at all modified. Thus we find Boxall's series of 15 mild cases with no complications and Leopold Meyer in 1888 reporting an outbreak of scarlet fever in the Copenhagen Lying-in Hospital in which the whole of the twenty-one cases ran the ordinary course of scarlet fever.

After a careful study of the whole matter the truth seems to me to be as follows. -

1. A woman who is passing through a normal puerperium may and perhaps not unfrequently

does develop an ordinary attack of scarlet fever; the two conditions existing together and without either modifying the other.

2. A woman, in the course of a puerperium, (which may till then have been normal) develops scarlet fever. Both conditions are at once modified; the scarlatinal symptoms remain more or less typically present but the normal course of the puerperium is disturbed and symptoms from this cause are added to the others. The fusion of the two elements gives rise to great variety of clinical appearances. Frequently the most striking feature is the rapidly depressing effect upon the constitution of the patient. She has a mild scarlet fever and a little puerperal disturbance but the resulting prostration is very severe; it might be said that instead of the effects being added together, they are multiplied. (Case VIII is an example of this, Case II to a less degree.)

3. A puerperal woman, exposed to the infection of scarlet fever may develop puerperal fever, the signs and symptoms of scarlet fever being so slight and so evanescent that only the subsequent history of the case (sequelae, desquamation, transmission of infection &c) compels us to recognize the scarlatinal element in it. Of such cases Braxton Hicks quotes several. Others are referred to by various writers and it is to such that the term "masked scarlatina" has been applied.

To pass to the consideration of the symptoms in detail, with special reference to the annexed cases.

Scarlatinal Symptoms.

Sickness and vomiting frequently mark the onset of

Dublin Quart. Journal 1866 p. 57.

the affection. This occurred in five out of eight cases, distinctly oftener than is usual in other adults. Probably this is to be accounted for by the irritability of the stomach during the puerperium.

Throat symptoms are usually mild. Thus McClintock says:- "The exemption from angina forms a remarkable feature of scarlatina occurring among puerperal patients." Slight soreness and dryness may be felt for some days but the severe sore throat so common in children is rare. Thus three out of eight patients felt no discomfort but the remaining five had more or less soreness; in none of them was it severe.

There is generally some reddening of the fauces even where the subjective symptom is absent. In two cases only was the throat found normal on admission to hospital, in two there was some swelling in addition to the redness and in one there was much reddening and oedema.

Tongue. The typical tongue of scarlatina - furred dirty-white, with the enlarged papillae showing through, and cleaning on the third or fourth day to the "red strawberry" state - is not so common in adults and is probably even less so in puerperal patients. In three cases the papillae were found enlarged, in one very much so. As regards furring, dryness &c, the conditions varied but in none of the cases was the "strawberry" condition well marked.

Enlargement of the Cervical Glands is almost invariably present in children, even where the throat affection is mild. In adults it is not so constant. Boxall asserts that in puerperal

Dublin Quart: Journ. 1866. P 56.

subjects "the cervical glands are usually affected whether any change has been apparent in the throat or not." Such has not been my experience as in only one case out of eight could the glands be felt enlarged at all.

Rash. The scarlet rash, bright red and finely punctate, usually appears on the first or second day, rarely later, beginning on the neck and breast, showing soon after on the trunk and limbs. In adults it is frequently very well marked indeed, the punctiform character being as a rule very distinct. In puerperal subjects most authors acknowledge that the characteristic features are often less marked, e.g. the rash may be less general in its distribution or its punctate character may be lost. Thus in Case VII there was only a faint blush on neck and arms and in two cases the eruption was absent from the lower limbs. In four cases it was copious and general, showing all the usual features. In another variety of cases - those which approximate to the puerperal type - the rash may be found dark-coloured and blotchy.

Braxton Hicks asserts that a peculiarity of the eruption during childbed is that it appears almost simultaneously all over the body. Boxall corroborates this and would ascribe it to the patient being warm in bed during the period of invasion. As my patients were only admitted after the eruption had come out sufficiently to furnish a diagnosis I cannot speak on this point.

Several authors state that the eruption appears early, but McClintock asserts the contrary of a

number of his cases; in one of them the appearance of the eruption was delayed to the 96th hour.

Of the eight appended cases, in two the eruption appeared on the first day and in five on the second day.

Flushing of the Face has been described as a marked symptom preceding the appearance of the rash. This was distinct in Case IV, but was not noted in any of the others.

Desquamation of the Skin is a feature to which the greatest diagnostic importance is attached. When it is copious and presents the typical characters - the skin being dry and separating in flakes, most markedly on the hands and feet - there can be no doubt as to the nature of the disease. But when it is less typical or even when it is not observed at all, it is not conclusive proof of the absence of scarlet fever as undoubted cases of scarlet fever do occur at times where desquamation of the skin does not follow.

Out of six cases which recovered it was very distinct in five, beginning from the 7th to the 18th day; in the sixth the question was complicated by the presence of a long-standing roughness of the skin. In every one of Boxall's sixteen cases desquamation followed. He remarks that "in character and distribution it presented great individual variety."

It is curious to note that Braxton Hicks in his long series of cases pays no attention whatever to this important diagnostic sign. One cannot help thinking that it would have greatly assisted to clear up some of the cases where the influence

of the scarlatinal poison was suspected.

Albuminuria. Traces of albumen are found from time to time in the urine of a large proportion, probably about 50%. of scarlatinal patients, but it is comparatively rare to find it in large amount with other signs of catarrhal nephritis. Albuminuria meriting notice from its amount and its persisting seems, however, to be more common in puerperal subjects. Thus Boxall reported that out of sixteen cases, in two the renal affection was considerable, one of them having dropsy and uraemia. Such has not been my experience; the urine was examined daily until the patients were allowed up and in only one case was there albuminuria, a slight amount being present from the 42nd. to the 65th. day.

That albuminuria should be relatively more common in puerperal scarlatina is not to be wondered at when we remember that a double strain is put upon the kidneys. These organs are always peculiarly susceptible to the influence of the scarlatinal poison, and during the puerperium they are already burdened by the increased elimination.

Rheumatism. There is a close association between rheumatism and scarlet fever. Severe attacks of articular rheumatism are rare but it is very common indeed for young adults to have, during the second and third week, pain and slight swelling attacking various joints in succession. Its rheumatic nature is further demonstrated by the readiness with which it yields to salicylic treatment. It does not appear that such

symptoms are more frequent in puerperal subjects. Braxton Hicks reports the presence of arthritic complications in 7 out of 37 cases, but Boxall found only one case out of sixteen. None of the annexed cases were attacked by these mild and fleeting arthritic symptoms. In Case VII, there was indeed a sudden fatal termination, associated with joint conditions but this will be discussed later.

Cardiac Sequelae, usually functional, are common in children, less so in adults. It does not appear that in puerperal scarlatina the tendency to cardiac complications is increased; in none of my cases did any such appear and their occurrence is not noted by any writer on the subject.

It may perhaps be theorised that the hypertrophy which occurs normally towards the end of pregnancy increases the local powers of resistance but of course there is no proof of this.

Puerperal Symptoms.

During the puerperium the economy is in a condition of unstable equilibrium. Very trifling causes, such as exposure to cold, constipation or even unwonted emotion are followed by more or less serious disturbances. Then also the condition of the genital canal – the large raw surface of the uterus and the greater or less laceration of cervix and vagina, with the presence of the lochial discharge – provides a fertile soil for the growth of septic organisms and a large surface for the absorption of their poisonous products. This instability is undoubtedly increased when an attack of scarlet fever occurs in the puerperal state. The scarlatinal poison weakens

Quoted by Olshausen. Olshs. Journ. Vol. IV

the resistance of the tissues and morbid processes both local and general develop with unusual readiness.

<u>Lochial Discharge</u>. Any alteration in the character of the discharge or in its amount is accepted as a danger signal in midwifery practice. It may be decreased or even suppressed for a time or it may become fœtid, without any further mischief developing, but such symptoms always deserve the careful attention of the physician. Among the poorer classes in Glasgow, however, owing to the conditions of their life these symptoms are so common as to lose a large measure of their significance. The series of cases observed by Dr Boxall in hospital is therefore of much greater value in determining the influence of scarlatina upon the lochia. In half of his cases he found a sudden increase in the flow on the onset of scarlatina and where the discharge had already become pale it usually became again sanguineous. In one case only did it become fœtid when the fever set in. Malfatti records that from the commencement of the disease the lochial discharge became offensive but was not diminished in amount.

Of the appended cases, in two the discharge was not fœtid and was unaffected by the fever; in two it was offensive on admission to hospital; in three there was, in spite of douching, slight fœtor for a day or two; in one the discharge ceased on the day after delivery with the development of scarlet symptoms but shortly returned and was then fœtid.

<u>Pelvic symptoms</u>. In Case V there was for some days tenderness and pain in the right ovarian region.

Obstet. Journal Vol. IV

Brit. Med. Journ. April 1887

Dub. Quart. Journ. Med. 1886

Zeitschrift für Geburts. und Frauenkr. Bd. 1. quoted by Olshausen.

With this exception there was in all an entire absence of symptoms traceable to pelvic mischief. In all the abdomen remained natural with no distension and no tenderness on manipulation. Even in Case III, where the general aspect was largely that of profound toxaemia, there were no local abdominal symptoms.

In the six cases which recovered the process of involution seemed to be little if at all retarded by the febrile condition.

This immunity from pelvic complication must be regarded as rather exceptional although the point is much debated. Olshausen emphatically asserts that "inflammatory affections of the pelvic organs are of the greatest rarity and are only to be regarded as casual complications." Boxall, out of sixteen cases found only one with slight distension of the abdomen and fulness in the left ovarian region. Other observers, however, have had a different experience, and the opposite view is maintained by Galabin, who says:- "It is not unfrequently accompanied by local lesions of the pelvis and the peritoneum." Thus Braxton Hicks out of 20 undoubted cases of puerperal scarlatina, mentions their presence in 8, - abdominal tenderness and distension, pain over the fundus and ovaries, and in one distinct cellulitis. McClintock, out of 34 cases, with 10 deaths, reported that two died of metro-phlebitis and of those who recovered two had slight tenderness over the uterus. A. Martin described three cases. All were fatal; in one there was peritonitis, in the others endometritis, para-metritis and in one also lymphangitis. Of 13 cases

Olshausen und Veit. Lehrbuch der Geburtshülfe. 1891. P. 835

Clinical Medicine. N. Syd. Soc. Trans. Vol. II p. 202.

reported to the Collective Investigation Committee, in all but two some symptom of local inflammation of pelvis or peritoneum was noted and in all the fatal cases the abdomen became distended.

Diphtheritic Endometritis is described by A. Martin and by Schroeder as not seldom occurring in puerperal scarlet and they correlate this to the frequent association of Diphtheria and scarlet fever.

Braxton Hicks also mentions a doughy condition of the vagina. None of my cases showed any trace of such local infective processes. Probably their frequency has been much exaggerated.

Inflammation of the serous membranes occurs in not a few ordinary septic puerperal patients. In some of these a peritonitis is due to a direct extension of inflammation from the uterus and appendages, in others peritonitis and pleurisy are products of a pyaemic condition. In scarlet fever also there is a tendency to inflammation of the serous membranes; in these it is generally a non-septic inflammation tending to resolution. The pleura and the pericardium are often thus affected, the peritoneum rarely. One would therefore expect that the serous membranes would frequently be affected when scarlatina is superadded to the puerperal state. Trousseau states that "patients either succumb under aggravated nervous symptoms ..... or from inflammation of the serous membranes - the pleurae pericardium or peritoneum - passing rapidly into suppuration." Statistics seem hardly to bear out this frequency, although A. Martin reports peritonitis in one case and McClintock observed it in two of his patients. In both of the latter it came on

Lena, quoted by Olshausen.

suddenly on the 12th or 13th day of the puerperium along with the first appearance of desquamation and M'Clintock held it to be a result of the scarlatinal poison.
In Case VII there was on admission a slight pleurisy but it did not extend and this was the only instance of serous inflammation noted.
Diarrhoea and Vomiting, are spoken of as frequently being present in women attacked by scarlatina in childbed. Thus Braxton Hicks found either one or both in six out of twenty cases and Lena of the Paris Maternité, writing in 1825, recorded the presence of diarrhoea in six out of seven cases four proving fatal. There is, however, nothing distinctive in these symptoms as they are very frequent in ordinary scarlatina and are also seen in many severe cases of puerperal fever.
In case III there was vomiting and persistent diarrhoea with towards the end complete loss of control over the sphincters. In most of the others the tendency was rather to constipation.
Thrombosis does not seem to be more common in puerperal scarlatina than in other puerperal conditions, but this is difficult to estimate when the recorded cases are altogether so few.
Mammary Glands. The mammary functions are very closely associated with those of the uterus and their due performance is provided for by a very elaborate nervous and vascular supply. Any constitutional disturbance is reflected in alteration of the quantity or quality of the secretion and the suppression of the flow of milk is usually one of the first signs of serious trouble. Thus it might

Quoted by Olshausen. Obstet. Journ. Vol. IV

Galabin. Brit. Med. Journal 1887. April.

well be expected that an acute febrile attack like scarlet fever would greatly diminish or abolish altogether the secretion. It is not always so. Boxall reports that four of his patients (25%) were unaffected in this respect by the attack and that in several the flow of milk was only lessened for a time.
The appended cases do not afford a good opportunity for studying the effect on the mammary secretion as on admission the children were at once removed from the breast if this had not been done before. In one case only were the breasts full and hard and the secretion difficult to suppress. In one the milk stopped on the day of onset; in four others the child was suckled for some days after; in one a small mammary abscess afterwards formed.
Septic Rashes are described as occurring in many cases of puerperal fever, varying much in character. Such eruptions may be petechial or may consist of erythematous blotches or of vesicles passing on to pustulation. Helm, Kiwisch, and other writers assert that in simple puerperal fevers there are often scarlatiniform eruptions and Galabin says that wellmarked cases are often seen followed by no desquamation. Olshausen discusses the evidence in detail and denies that distinctly scarlatina-like eruptions ever occur in ordinary puerperal fever, considering these cases as truly scarlatinal.
It has been pointed out as a proof of this that a scarlatiniform eruption is of rather good prognosis as against blotchy, petechial, and other atypical eruptions, which are usually found in the severest forms of puerperal fever. Probably there are few

cases in which attention to the characters of the rash along with the other symptoms would not afford a diagnosis.

Some observers have described as almost pathognomonic of puerperal fever a mottled rash which appears on the palmar aspect of the hands. Nothing of this kind was observed in any of these cases.

Of symptoms which are common to both conditions, Pyrexia is the most important. In scarlet fever the temperature runs very high in the first few days. In children at least it scarcely excites remark although it is 104° and not uncommonly it may reach 105° or 106°. Often the temperature remains high with only a small enlarged gland or a fleeting joint pain to account for it. In adults, however, this tendency is usually less marked.

In puerperal women again the same rule holds to a large extent; slight causes produce a fever which seems out of all proportion to their magnitude.

Thus when the puerpera takes scarlet fever, she is especially prone to pyrexia. This is extremely well shown in the following cases. Out of eight cases, on the day of admission the temperature reached 105° in two, and was over 104° in other three. In a sixth, the temperature was subfebrile but a few hours retention of the discharge within the uterus sent it up to 104.2° to fall again at once on the administration of a uterine douche. Cases III & VII which proved fatal ended with temperatures of 105° and 106° respectively.

Prognosis. In attempting to form a prognosis in

Dub. Quart. Journ. Med., 1863.

this disease the single element which seems of most value is the date of onset. In these eight cases this is not well brought out as in the two fatal ones special factors intervene. But it is generally accepted that the danger to life is greater the earlier the scarlatina sets in during childbed. This is very strikingly shown in Dr McClintock's cases. Of ten fatalities among thirty-four cases, eight were patients in whom the disease appeared within thirty-six hours of delivery. The same holds good though to a less degree of Dr Halahan's cases. The statistics of Olshausen's collected cases bring out this fact very clearly, thus

out of 8 attacked immediately after labour 6 died = 75%
" 62 " in 1st & 2nd day " 35 " = 56.5%
" 27 " on 3rd day " 14 " = 51.8%
" 22 " from 4th to 8th day " 3 " = 13.6%

This relation between early onset and severity is also found in ordinary puerperal fever, as a rule those cases prove the most malignant when the fever sets in on the first or second day.
The explanation seems obvious - that every day of the puerperium which passes normally aids in the reestablishment of the non-pregnant conditions and diminishes the special susceptibility of the puerpera.

In ordinary scarlet-fever great differences are found in the severity of epidemics; from year to year and between one district and another the mortality ranges from under 5% to over 20%. Among individuals and families also, susceptibility varies greatly. Thus in some families the members

take scarlet at once on exposure to infection and are severely ill, other families remain free or are only attacked in the mildest form. These considerations lose none of their weight when the patient is a puerperal woman and they must be taken into account.

The bodily condition of the patient at the time has also its bearing upon prognosis. She may be young, vigorous, and of an excellent constitution, or she may be already feeble and exhausted by frequent pregnancies and prolonged lactation. Either condition will have its effect in increasing or diminishing her chances of successfully resisting the malady.

In attempting a prognosis the greatest importance attaches to an estimation of the extent to which the septic or puerperal element enters into the case. This may take the form of a local lesion - metritis; thrombosis, cellulitis &c - or of a more general condition, a septic intoxication. They are usually more or less associated but the latter is specially to be dreaded as its effects are rapidly produced while the scarlatinal poison has still its first virulence and thus the patient sinks, overpowered by their united severity.

To summarize therefore, the prognosis must be based upon the date of onset, the prevailing type of epidemic, the bodily ~~constitution~~ condition and the individual susceptibility of the patient, and the extent to which septic or puerperal complications are present. Of individual symptoms, a livid and badly-developed rash, great delirium and* severe diarrhoea are all of very grave significance.

Treatment. This may be preventive or curative.
Preventive. Towards the end of pregnancy every means should be taken to avoid the risk of infection from scarlet fever. Although women often enough go through a normal puerperium after exposure to it, we should remember what a dreadful complication of childbed scarlet fever may prove and should urge them to avoid it even at great inconvenience. A previous attack of scarlatina cannot be held to afford much protection as second attacks during the puerperium are by no means rare. If scarlatina has been present in the house within three or four months, I personally should advise the woman to seek accommodation elsewhere as her time comes on, as nothing is more striking than the persistance of scarlatinal infection among household surroundings. Where removal is not practicable and still more when scarlet fever is present in the house at the time, the strictest isolation and disinfection should be carried out.

In a similar way it is desirable that no one who is to be in attendance on the woman to be confined should also be coming in contact with sources of possible infection. This prohibition applies specially to those who are to be closely associated with her as nurses. It also opens up the whole question of the possible transmission of infection by the medical attendant and his duty in regard to it. It has frequently proved rather a burning question and cannot be entered into here in detail. It is obvious that as medical practice is organised at the present day, the general practitioner must often attend both infectious patients and women in labour.

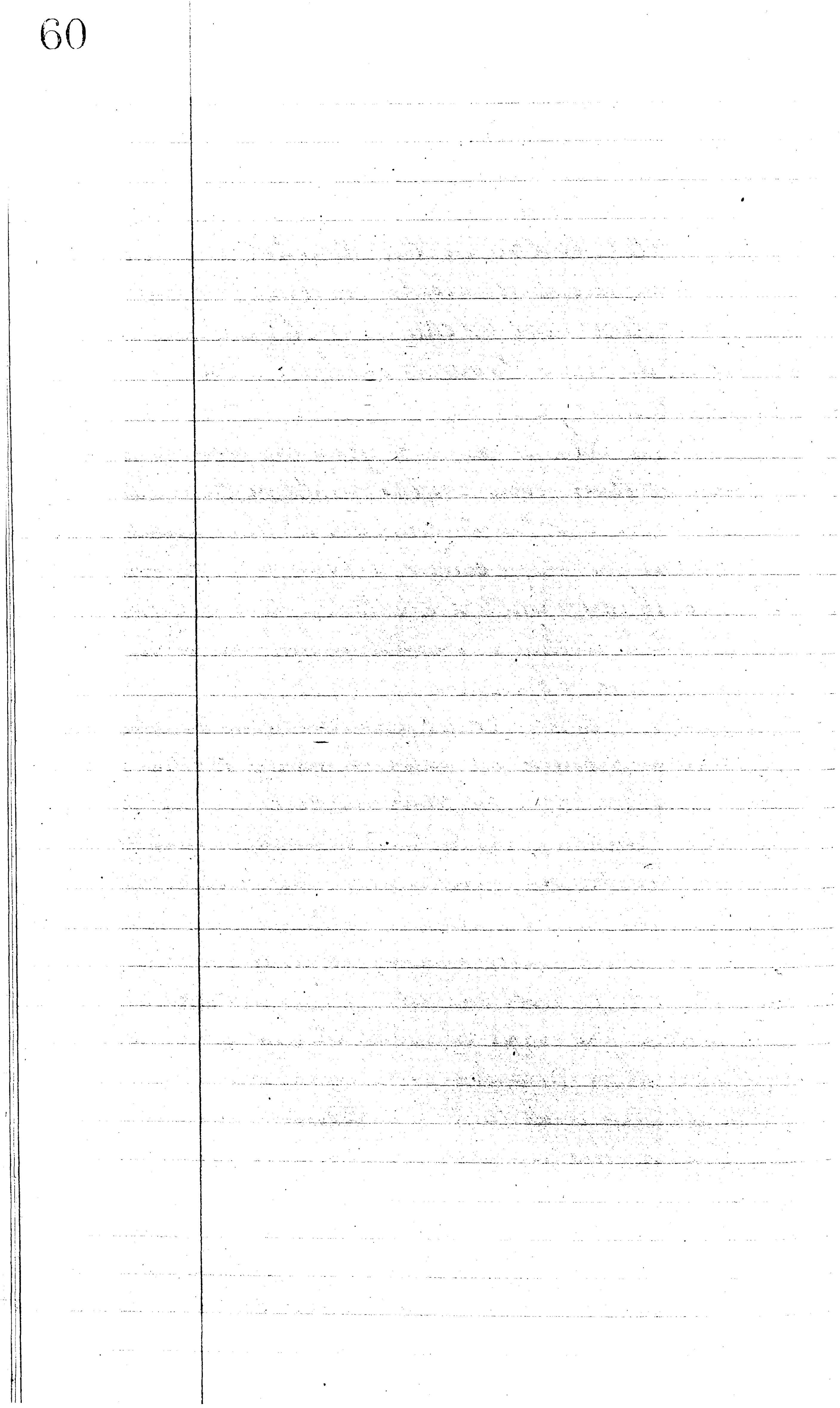
No one however can avoid feeling that in doing so he is incurring a serious responsibility, and every medical man must feel that it is his duty to do all in his power to minimise the risk. Much can doubtless be done in this direction by ablutions and by use of germicidal solutions, probably a great deal more by change of clothing when possible and by free exposure to fresh air after seeing the scarlatinal patients.

When there is reason to fear the occurrence of scarlet fever, every means should be taken to improve the bodily condition of the patient by careful dieting, exercise, attention to the bowels &c. Special care should also be taken during labour to see that nothing is omitted which might lessen the chance of sepsis arising.

Curative. When scarlet fever has actually appeared there is of course no means known of cutting short the attack, but by combating symptoms as they arise, rendering the patient comfortable and husbanding her strength, very much may be done to tide her over the period of danger.

As a preliminary measure it is desirable to have the bowels well opened. An enema does not unload the whole canal so thoroughly but it is safer than purgatives given by the mouth as the latter are uncertain in action in puerperal women and serious diarrhoea is readily set up.

The pyrexia, as has been pointed out above, is often great. At first a mild diaphoretic and refrigerant such as citrate of potash or acetate of ammonia may be given. If the fever heat become greater and the patient be restless and tossing, much relief is often



obtained by tepid or cold sponging of the body, every 20 or 30 minutes. Where the temperature runs over 104°, not yielding to milder measures and having an exhausting effect on the patient, packing in the wet sheet generally suffices. This may be used tepid, cold, or iced, for ten to twenty minutes, using great care and if need be giving stimulants to prevent collapse. Baths can seldom be utilised in private practice and they do not find much favour in this country. Olshausen insists on the use of lukewarm or cold baths and Trousseau speaks with great praise of cold affusion especially where there is much delirium. Where sponging fails and packs disagree Phenacetine in 4 or 5 gr. doses may be given. It often soothes the patient well and may keep the fever down for six or eight hours. The other antipyretics are apt to prove too depressing and it is imperative to avoid any lowering of the strength.

If there is much discomfort in the throat it may be relieved by spraying with dilute Glycerine of Borax, but if any considerable ulceration is present - a rare condition - swabbing with Carbolic Glycerine (1-20) or painting with Silver Nitrate (20 grs. to ℥i) will generally put it right in a few days.

The tongue and mouth, if dirty, should also be cleaned with Glycerine of Borax, and diluent drinks may be freely given. Enlargement of the cervical glands will seldom require any treatment.

The child should at once be taken away from the mother as every day of contact increases the risk of its taking the fever. If the milk is not at once suppressed the usual means - Belladonna, Phytolacca &c - should be employed to diminish the secretion

and relieve the tension in the mammae.

<u>Puerperal symptoms</u> demand early and energetic treatment. If the labour has been efficiently supervised and is known to have been satisfactory there will not be the same urgency. Where this is not the case and where on coming under notice there is fœtid discharge, with or without uterine tenderness, the uterine cavity should be explored and any remains of secundines or blood clot removed. Many authorities would be disposed to use the curette freely to the interior. Then a large hot douche, rendered antiseptic by Iodine or Carbolic Acid, should be given but this need not be repeated unless the uterine condition seems to persist. In most cases it will be advisable to give a vaginal douche twice or thrice daily. This, however, may often be dispensed with if it cannot be satisfactorily given and if the discharge remains normal.

Abdominal fomentations may be used and opiates given where <u>pain</u> is complained of.

<u>Vomiting</u> and <u>diarrhœa</u> may be checked by gastric sedatives and opiates. Towards a fatal termination the diarrhœa will seldom yield even to such.

The <u>great prostration</u> is often a prominent symptom, sometimes almost the only one; in some cases it produces a condition which could best be described as typhoid. It is of the utmost importance to combat this and free stimulation should early be employed. Every writer lays stress upon this - notably Halahan and McClintock who wrote at a time when stimulation was as yet rather the exception in the treatment of fevers. In those days "wine and bark" were relied upon; probably most

medical men would now use brandy or whisky.
If these are rejected by the stomach, iced champagne may be found to be retained. The amount to be given should be judged only by the effect produced, 10 or 12 oz. of brandy in the 24 hours may sometimes be profitably given and if this begins to lose its effect it may be exchanged for champagne or combined with it.

Other drugs may be given at the same time, such as ammonia, digitalis or quinine. The last is sometimes given alone or combined with salicylates with an underlying hope of being able to combat the toxaemic condition present.

Rheumatic complications will generally yield readily to appropriate doses of the salicylates.

During convalescence and until desquamation is over care should be taken to avoid chills, to keep the skin acting well, and to limit the amount of nitrogenous food taken, with the object of averting kidney mischief.

Treatment thus resolves itself into combating any tendency to sepsis, treating other symptoms as they arise, and supporting the strength by free stimulation when required. Many cases will hardly require any treatment; not a few will continue on their course to a fatal termination unaffected by any means of treatment at our command.

Tabulated series of cases.-

Case	Child	Onset	Rash	Scarlatinal Symptoms	Temp &c	Desquamn
I. Mrs Johnstone aet 20. Prim. Labour normal	Alive Doubtful if it had scarlet	3rd. day sick and vomiting	4th. day. bright-red punctate general	Throat negative. Tongue furred. Glands not enlarged.	105° on admiss. High for 10 days P. 84-94	Began on 7th. Very free.
II. Mrs. Garbette aet 29. 2nd. pregnancy Labour normal	Large & healthy (died in poor-house)	5th. day sick and vomiting. slight sore -throat.	evening of 5th General blush on trunk. Punctate on limbs.	Throat red and slightly swollen. Tongue furred, rather dry; a few enlarged papillae. Glands not felt	105° on admiss. High for 6 days P. over 100	Began on 13th. Very free.
III. Maggie Braiden aet 19. Prim. At 7th. month? Labour easy.	Still-born	4th. day sick and vomiting. Sore-throat	5th. day. Dull-red. Punctate.	Throat congested and a little dirty. Tongue thickly furred, papillae enlarged. Glands not enlarged.	Very high till end P. soft & quick	—
IV. Mary Hunter aet. 20. Primipara. Labour normal	Healthy (Died shortly in poor-house)	6th. or 7th. day. No sickness	8th. day. General, bright-red, punctate	Throat normal. Glands not felt. Tongue coated white.	101° to 102° P. 100	Not typical.

(The numbers refer to the day of the puerperium.)

Abdominal Symptoms	Discharge	Mammae	Result	Remarks.
Uterus 1 in. from umbilicus. No tenderness. Abdomen soft. Os admits 3 fingers	Free. Odour not bad. Scanty & foetid on 9th. day. Stopped on 16th.	Milk suppressed on 3rd. Breasts flaccid	Well.	Never much prostrated. Sl. Albuminuria from 42nd. to 65th. day. Menstruated on 32nd. and again a month later.
Abdomen flaccid. Uterus size of a large orange. Os patulous, and admits two fingers.	Average quant. Odour not heavy. Scantier & slightly foetid 7-11th. Afterwards odourless	No milk on admission	Well.	Very weak for ten days. Twice feverish from local abscesses. Menstruation 23rd - 27th. day, not profuse.
Abdomen relaxed. No tenderness anywhere. Uterus illdefined. Os high up & patulous. Several lacerations in vagina.	Scanty and very foetid.	No milk on admission	Died	Very weak; vomiting, incontinence of urine & faeces, & delirium till death on 7th. Placental tissue removed from uterus.
Abdomen soft and natural. No tenderness. Uterus well defined, 1½" below umbilicus. Os admits one finger. Slight lacerations of vagina.	Scanty and very slightly foetid. No foetor from 12th day.	Mammary abscess in 4th. week.	Well	Feverish about 15th. day with slight constipation and difficulty of micturition.

Case	Child	Onset	Rash	Scarlatinal Symptoms	Temp. &c	Desquam.
V. Mrs. Cath. Thomson aet 32. 6th. pregn. Labour normal	Healthy	2nd day No sickness or vomiting Sore-throat	2nd. day Copious and punctate on arms, chest and back.	Throat a little reddened Right tonsil enlarged. Tongue moist and slightly furred. Glands not felt.	Sub-febrile except for one day	From 18th. day Free.
VI. Mrs. Dickson aet 24. Primipara. Labour normal.	Healthy	4th. day sick and vomiting.	4th. day. Copious on back and buttocks; less so on arms.	Throat and palate red and slightly swollen. Tongue furred on dorsum, red and dry at tip. Glands not enlarged	104.4° P. weak rapid & irregular T. came down quickly	Very Copious.
VII Mrs. McCracken aet 33. 5th. pregnancy Labour normal	Healthy	6th. day Shiverings, headache. Sickness & vomiting	(?) 7th. day. ~~Copious and general.~~ Only faint blush on neck & arms	Tongue dry, thinly furred with slight hacks. Throat much reddened and oedematous. Glands not felt.	104° P. 100 to 120.	—
VIII. Mrs. Bishop. aet 31. 5th. Pregnancy Labour short. Forceps (inertia)	Healthy	11th. day. Not sick or vomiting Some shivering.	12th. day Very copious. general.	Throat slightly congested. Tongue red, dry, glazed with papillae much enlarged. Glands slightly enlarged	101.2° P. 140 soft & weak	From 15th. day Very Copious.

Abdominal Symptoms.	Discharge	Mammae	Result	Remarks.
Abdomen relaxed. No tenderness except for a short time over right ovary. Uterus made out about size of a lemon.	Moderate in amount, yellow-white, foetid. Stopped on 16th.	Suckled for a few days. Flaccid on admiss.	Well.	On 12th day retention of discharge within the uterus sent temp. up to 104.2° Relieved at once by uterine douche.
Abdomen full, soft and not tender. Fundus midway to umbilicus. Os admits three fingers. A large tear in perineum.	Free and distinctly foetid. Ceased on 16th. day	Suckled for three days. Flaccid on admiss.	Well.	Patient was sharply ill on admission but improved rapidly from next day.
Abdomen soft and natural. No tenderness. Uterus ill-defined. Os high up, fissured, soft, and admits one finger.	Scanty, whitish-yellow, mostly mucus. Not foetid.	Full & hard. Exhausted on 10th & 11th.	Died.	On 13th. day, sudden development of joint conditions with high fever. Death early on 14th. day.
Abdomen soft & natural. No tenderness anywhere. Uterus ill-defined.	Scanty, yellowish, no foetor. Only a stain after 3 or 4 days.	Suckled for some days. Flaccid on admiss.	Well.	Great prostration. Condition quite typhoid Very free stimulation required.

22. Quin. sulph. gr. ii P. Digitalis & P. Opii āā gr. ¼. 4 hourly
Uterine douche twice daily Carbolic 1-60.

24. Vaginal douche only.

26. Powders stopped.

Case I. Mrs. Johnstone, aet 20.
397 New Road, Parkhead.

Admitted April 22nd. 1895

Was confined on 18th inst. Was sick and vomiting on 20th. Rash began to appear on 21st. Throat not sore at any time.

Condition on admission.

Temp. 105°

Rash bright-red, punctate, general.

Throat presents nothing abnormal.

Tongue furred. Glands not enlarged.

Heart normal. A few small râles over both lungs.

Breasts flaccid. Suckling stopped on 20th.

Abdomen. Uterus reaches ~~from~~ to 1 in. from umbilicus no pain or tenderness on pressure over fundus or in flanks

Discharge is free and odour is not bad.

Os patulous and admitting two fingers easily; cervix soft.

26·4·95 Temp. continued high - 103° and upwards - checked by cold sponging when 104°. Has been coming down since yesterday and is now 100·8°.

Discharge is now less free and has begun to smell heavily.

There has been an entire absence of symptoms; no pain in abdomen, distension never great and patient passing the days drowsily. Desquamation began on 24th.

Throat has been slightly dirty. Tongue inclined to be red and dry in centre

27·4·95 Discharge a little less; has now lost the heavy odour which was present yesterday. Throat clean; tonsils very slightly swollen. Continues to feel well.

29·4·95 Temp. went up from normal to 101° at 6 p.m. without cause apparent. Feels very well and looks better

than before. No pain. Some discharge yet, no special odour. Bowels regular.

6.5.95 Temp. has been irregular since last note. On 3rd. inst. reached 103° without any complaint made or cause apparent, steady below 100° for 7 hours and now normal. Pulse all along has been steady at 84-94. Discharge scarcely a trace, no odour. Feels quite comfortable. Tongue clean and moist. Desquamation now very fine.

20.5.95 Temp. has been normal since 7th. and condition in every way good. Urine free from albumen all through. Yesterday menstruation began, very profuse and some clots. No pain and no constitutional disturbance.

29.5.95 Menses only profuse on first day; ceased on 23rd, a little again on 25th. Today allowed up a little in afternoon. Heart examined and found normal.

1.6.95 On evening of 28th and 29th was up a little, since then normal. Yesterday urine was clouded a little on boiling and gave the guaiac reaction. It had hitherto been clear. Quantity of urine had been averaging 35 to 40 oz., with drinking urged upon her, it rose yesterday to 100 oz. Tests this morning the same.

7.6.95 Albumen still a deposit. No blood reaction. Urine keeps up - from June 1st. 114, 120, 70, 92, 86 and 106 oz. On milk, water and Potus Imperialis but no other medicine.

14.6.95 Albumen just a faint haze for two days. Quantity keeps up. Condition otherwise good.

21.6.95 Still a haze on boiling urine. Patient has been up again now for two days.

27.6.95 Menstruating.

July 10th. Urine has been clear since menstruation ceased
Dismissed today - Well.

The baby was admitted with its mother. There was a distinct blush all over the body and the skin peeled off later but the diagnosis of scarlatina remained doubtful.

In this case there was very high fever for some days and the temperature remained up for nearly three week. The patient was all along quite comfortable with practically no symptoms. The cause of the continued feverishness was not apparent; - there were no signs of pelvic inflammation and the throat affection was trifling.
The late appearance of the albuminuria was noteworthy.

29. Salicylate of Soda gr. XV and Sulphate of Quinine gr. IIß every 4 hours.
Temp. to be taken two-hourly and patient sponged when it reaches 104°.
Douched thrice daily. Carbolic 1-60.

Case II. Mrs. Garbette, aet 29.

Admitted April 29th.

Was confined on 24th April. Became ill yesterday with slight sorethroat, sickness, and vomiting. Rash seen last night. Thinks she had chicken-pox as a child; does not know if she ever had scarlet. Has had a still-born child. The baby this time was large and healthy, weighing 9 lbs. It showed no signs of scarlet fever. (Died later in poorhouse.)

Condition on admission.
Temp. 104·8° P. 136. R. 32.
Rash. There is a general red blush over breast and abdomen; over arms and legs especially on backs of hands there is a distinctly punctate red rash.
Throat red and slightly swollen; clean.
Tongue furred white, not very dry, and with a few red papillae. Glands not felt.
Heart normal. Lungs present nothing abnormal in front, back not examined. Complains of a longstanding cough.
Abdomen flaccid, no tenderness anywhere. Uterus of the size of a large orange. Vagina short; labia a little swollen. Os large and patulous, with ragged edges; os internum admits one finger.
Discharge fair in amount; odour not heavy.

30·4·95 Patient continues to say she feels well. Has coughed a good deal but less since the application of mustard to the bases.
Temp. keeps very high - 105° at 6 p.m. Great relief obtained from sponging and cold cloths on head.

1. 2.am. Gave instead of salicylate
Quin. gr. v Digital. Pulv. gr. i every 4 hrs.

2. Stopped powders & gave
℞ Spt. Æther. Nitr. ʒii
Tinc. Digital. ʒi
Tinc. Opii ʒss
Spt. Amm. Ar. ʒii
Aq. ad ℥iv m
Sig. ℥ss every 4 hours.

5. Stimulant mixture stopped.

Rash darkred, very intense on abdomen. No pain anywhere. Abdomen slightly fuller but soft.
Bowels moved once today. Discharge less, slightly fœtid.

1.5.95 Has slept none during night. Complains of deafness and noises in ears; not clear if ears were normal before illness.
Pulse a little better but patient scarcely strong enough to move herself in bed. Rash punctate on hands and topped with vesicles on chin.
Discharge less with a very slight fœtor.

3.5.95 Patient now looks better; her complexion has lost its dusky, leaden hue; tongue is moist and cleaning; pulse soft but regular and not so quick. Says she feels better. Much stronger, helping herself easily. No pain or tenderness. Discharge stopped. No odour on douching. Rash still distinct on abdomen, fading on chest and arms.

6.5.95 Temp. has come steadily down and this morning is normal. Condition in every way satisfactory.
Tongue moist and clean; no pain anywhere; sleeps well and has an appetite. Discharge now a little, with no odour. Rash quite gone. Some aphthous soreness of mouth - better today.
Desquamation beginning on hands.

11.5.95 Yesterday evening temp. rose and during the night was 103.4°. Complained of pain in left iliac fossa but there was no tenderness or distension there or anywhere. This morning feels well. Discharge still present, - scanty, light coloured and odourless.

12.5.95 This morning discovered a small rounded swelling at lower angle of right scapula. It is freely moveable among the muscles over the ribs and is tender and slightly painful. Condition otherwise unaltered.

15·5·95. Swelling increased to 3ins in diameter, and obscurely fluctuant. Incised and liberated a small quantity of dark bloody fluid. No proper abscess cavity and no bare bone found. Condition appears to have been one of low cellulitis.
Wound stuffed and dressed antiseptically.

17·5·95 Temp. this morning normal. Patient feels easy and wound looks well.

23·5·95 Menstruated from 16th. to 20th. Condition generally is good although she is paler. Wound looking very well.

26·5·95 Temp. rose suddenly to 103·6° last night, due apparently to very small boil in left axilla. Temp. now normal. Some vaginal discharge again yesterday.

1·6·95 Some pain in right ear & temp. up to 101·8°

7·6·95 Temp. has been normal since; no further trouble. Wound healed. Allowed up on 5th. Desquamation still proceeding.

June 26th Dismissed-Well.

In this case there was nothing worthy of particular note except the great weakness. This was so marked for some days that she could hardly turn herself in bed, not at all a common thing in ordinary scarlet fever.
The tendency of such patients to become fevered on very slight cause is well shown. Thus a very small boil in the axilla was sufficient to produce a temperature of 103·6° and a little earache which came to nothing was marked by a temp. of 101·8°

Stimulant mixture - 2 doses given but stopped for vomiting.
Brandy ʒj every half-hour if possible - frequently vomited.

Case III

Maggie Braiden, æt 19.
110 High Craighall Road.

Admitted April 30th.

Primipara. Was confined at home on April 26th.
Child was thought to have been only 7 months and to have been dead some time.
Felt well until yesterday when she had sore throat sickness and vomiting. Rash seen this morning.
Has had no other infectious disease.

Condition on admission at 3 p.m.
Temp. 104·6° Patient is evidently very sharply ill.
Rash dull red, distinctly punctate on chest and arms fainter but more papular on legs; a diffuse blush on abdomen showing no punctae on lineae albicantes.
Throat a little congested. Glands not enlarged.
Tongue has a thick yellow fur on dorsum, the papillae showing through it at tip.
Heart normal. No cough.
Abdomen flaccid; no tenderness anywhere on moderate pressure. Uterus ill defined.
Vaginal examination resisted; os high, patulous with margins soft. Discharge has a strong odour.

10·30 p.m. Patient is weaker; has vomited frequently since admission, sometimes largely bilious.
Complains of headache. Pulse rapid and very soft.
Appears dulled mentally and occasionally rambles.
Throat dirty; some little difficulty apparent in swallowing.
Passes urine and faeces in bed, three motions since admission. Discharge scanty but fetid.

1·5·95 Still vomiting at intervals, all medicine and even

milk. Quite unconscious; talks a little.
Temp. down to 102·2°. Pulse very soft and rapid.
Tongue white and dry. Discharge scanty & very fetid.
3·30 p.m. Under chloroform, found vagina very narrow and os high up and widely dilated.
Failing to get uterus down satisfactorily, introduced hand into vagina and two fingers into the uterus.
Cavity felt to be about half the size of the contracted uterus after labour. Found soft tissue in upper part in front. Removed easily with fingers at least a tablespoonful of what seemed placental tissue. Flushed out uterus well with Carbolic 1-60.
There are several lacerations in the vagina.
Patient stood the chloroform well.

2nd. May. Patient became rapidly weaker. An hour after the operation she had a rigor, lasting about 5 mins. Pulse became very feeble and irregular and at last imperceptible. Temperature continued high.
Died at 3 a.m. P.M. refused.

Patient's sister, aged 15 mos. became suddenly ill with sore throat &c on the 14th. inst. and died on the evening of the 15th. No rash appeared but the disease was certified as scarlet fever.

This case is very interesting in many ways. The infection had been in the house for a fortnight but she did not develop the disease till the fourth day of the puerperium. Again, the case was a very malignant one. As shown by the sister's death, either the virus was unusually potent or the family predisposition great. It is also probable that there was an element of septic intoxication although there were no local symptoms.

21. Vaginal douche twice daily
3 pints Carbolic 1-60.

Case IV. Mary Hunter, aet 20.

Admitted May 21st.

The patient, unmarried and a primipara, was delivered on the 14th inst. labour being quite normal. The course of the is reported to have been as follows

18th. E. 100° 20th. M. 101° E. 103·6°
19th. M. 99·4° E. 103° 21st. M. 101°

On the morning of the 20th. a uterine douche was given; in evening face was flushed and on morning of 21st. a rash was seen all over the body.

Condition on admission.

Temp. 101·2° P. 106 R. 35.

Rash is general, bright-red, and distinctly punctate. The skin is dry and covered with a fine scurf; here and there as on the legs there are thin flakes or scales. This scaly condition has existed as long as she can remember.

Throat quite normal. Patient feels no discomfort at all. Tongue coated white, papillae not enlarged; breath very foul. Glands not felt. Heart sounds clear, Lungs - some wheezing in front. Patient says she has no cough.

Abdomen soft and natural in feeling. Uterus easily made out 1½" below umbilicus. No pain or tenderness even on firm pressure.

P.V. Vagina short. Os admits one finger easily, cervix soft. Some tender areas about ostium vaginae, apparently due to slight lacerations. Some difficulty in micturition has been present since confinement. Discharge scanty, very slightly

29. Infus. Digitalis m. XV every 4 hours.

foetid.

22·5·95. Feels better, complaining only of pain in back of neck. Slept well. Temp. 102° once during night. Discharge less and odour less heavy.

23·5·95. No feeling of discomfort at all. No tenderness or distension of abdomen. Discharge unchanged: - three napkins daily. Rash faded to a general dull redness with little of a punctate character. T. 100°.

26·5·95. Rash has quite gone, leaving the scaly condition which patient says she has always had. Feels as well as ever she was. Temp. has fallen gradually to 99°. Discharge less; no fetor.

29·5·95. Costive for some days. Restless during night and complaining of abdominal pain. Temp. 103·8° at 10 a.m. Some tenderness over lower part of abdomen. Both pain and tenderness seem to be due, not to a uterine condition, but to the state of the bowels and bladder. Passes urine with some difficulty and at long intervals.

30·5·95. The temp. gradually fell. Last night there was some distension relieved by turpentine enema. Tenderness less this morning.

3·6·95. Feels quite well. Temp. keeps normal. Urine inclined to be scanty still - 31 oz. in 24 hrs. Obstinately constipated, relieved only by enemas. Complains of pain in left breast close to nipple. Digitalis stopped today; pulse rate much reduced.

9·6·95. Incised a small abscess in left breast, liberating about an ounce of pus. Wet dressing.

21·6·95. Wound healed. Condition very good. Allowed up. The rough scaly condition noted on admission is now much less marked and the skin on the chest and face is fairly smooth. Skin of feet is peeling off in small portions leaving a smooth natural

surface. The appearance is perhaps not quite typical of scarlatinal desquamation, the skin separating in very small fragments and being dry and powdery. Legs still scaly, pretty much as on admission.

28·6·95 Has been in bed for two days with temp. slightly raised but has complained of nothing except a little pain in legs and feet last night. Skin assuming a more natural appearance.

July 10th. Dismissed - Well.

In this case there is room for doubt as to the correctness of the diagnosis. The peculiar condition of the skin deprives the desquamation of much of its significance, and the fever and the rash were the only signs of scarlatina present. Also, the rash did not appear till the fourth day of the fever. But the rash had well-marked scarlatinal characters and there appeared to be too little of a ~~of~~ septic condition present to produce it even if we admit that simple puerperal fever is ever accompanied by a scarlatiniform rash.
The difficulty of micturition was probably a vesical or urethral condition and not due to any kidney trouble; the urine remained free from albumen throughout.

Vaginal douche thrice daily. Carbolic 1-60.

Case V

Mrs. Catherine Thomson, 32.
41 Wolseley St.

Admitted July 19th.

Was delivered 8 days ago at home; the child, her sixth, alive and healthy. Labour was attended by a midwife and said to be normal.
Discharge stopped on the second day and on that day she complained of sore throat, and a rash was noticed on her arms. No sickness or vomiting.
Discharge returned; it was scanty but she did not remark any unusual foetor.
Has had typhus and has been told she had scarlet fever as a child.

Condition on admission
Temp. 99°.
Rash copious, fading, distinctly punctate on arms chest and back. None on legs. Numerous bullae on skin of abdomen due to application of turpentine.
Throat a little reddened, right tonsil a little large.
Tongue moist and slightly furred. Glands not felt.
Heart and lungs normal.
Abdomen. Walls completely relaxed. Uterus easily made out, about the size of a lemon. No tenderness or pain except on pressure over right ovarian region. Patient says the pain there was severe for some time.
P.V. No tenderness about vagina. Os large, irregular, soft and patulous, admits one finger easily. Discharge in some quantity, yellowish white and foetid.
Breasts flaccid.
An older child also sent in with scarlet fever.

21. Ol. Ricini ℥ß.

Right breast to be rubbed with Lin. Camph.

22. Uterine douche.
Pulv. Glyc. Co. ʒiß

23. Uterine douche.

29. Vaginal douche only twice daily.

21·7·95 Patient continues very well. Temp. never above 99·4°
Tenderness in right ovarian region now gone.
No pain or uneasiness. Appetite good. Throat
normal, tongue moist and clean. Discharge
still considerable but whiter and less foetid.

22·7·95 10 p.m. Temp. rose during last night and patient
did not sleep after 3 a.m. During the day she
was very drowsy but said she felt no pain or
uneasiness except a slight headache.
Abdomen was quite soft but a little more full than
on admission; no tenderness on moderate pressure.
No discharge came away, even with the vaginal
douche. Temp. continued rising and reached 104·2°
at 9 p.m., so at 10 p.m. a warm uterine douche was
given of 4 pints Carbolic 1-60. It brought away
at first a considerable quantity of discharge.

23·7·95 Temp. had fallen at midnight to 103°. Fall
continued during the night patient sleeping
quietly and this morning at 9 a.m. the temp. was
99·6°. Two large motions followed the laxative.
Abdomen quite flat. Rash almost gone, a little
remains on chest and arms

24·7·95 No discharge appeared yesterday during the day
so uterine douche was repeated in the evening
bringing away some yellowish discharge.
Temp. was normal at 9 p.m. and has continued
so till now. Patient had a good night and feels
quite comfortable. A moderate amount of discharge
has been coming away since last night, still a
little offensive.

26·7·95. Continues well and temperature normal. Still a
little discharge and foetor still present.

29·7·95 No discharge yesterday or to-day. Very well.

There is slight desquamation on neck.

Sept 20th. Convalescence satisfactory. No complications. Dismissed - Well.

This case may be taken as a good example of scarlatina running its course unaffected by the puerperal condition. The attack, like that of her child, was a mild one and the fever was already over when she was admitted to hospital.
This mildness was all the more remarkable as the scarlet fever developed very early in the puerperium. It exercised very little disturbing effect upon the course of the puerperium, the discharge being only arrested for about a day, - the 2nd.
On the 11th. day after delivery the effect of septic absorption was very clearly demonstrated. The discharge ceased and the patient became drowsy, the temperature rapidly rising and by the evening reaching 104.2°. On giving a uterine douch, the pent-up discharge was liberated and the patient rapidly regained her former condition.

Case VI

Mrs. Dickson, aet 24.
20 Norfolk St.

Admitted December 24th.

Primipara. Was confined at home of a full time child four days ago. Labour lasted about 24 hrs, she was not very ill; her doctor said everything was all right. There was scarlet fever in the house next door (case VII). She was in and out of Mrs. McCracken's house from the latter's confinement until the day before her own.
Patient felt all right, was suckling a healthy child, and the lochia were coming away freely until yesterday. She then was sick and vomited a little and was seen to be feverish. Shortly afterwards a rash was noticed. Discharge remained free.

Condition on admission.
Temp. 104.4°. Pulse soft, weak, and occasionally irregular. Patient appears sharply ill; face has a dusky hue with slight lividity on cheeks and lips.
Throat and soft palate red and a little swollen.
Tongue furred white on dorsum, red and dry at tip.
Glands not felt enlarged.
Rash. Breast is reddened by poulticing. Over the abdomen there is a dusky red blush with little of a punctate character. Over the back there is a distinctly punctate red rash, not bright and with a yellowish tinge; on the buttocks this is still more marked. On the flexor surfaces of the arms there is a dull red coarsely punctate blush. The legs from the middle of the thighs are free from rash.

24. Vagina douched daily with weak Iodine solution.

25. Uterus douched.

26. Douche curette to uterus.

29. ℞ Ferr. Ammon. Citr. ℨi
Spt. Ammon. Arom. ℨiv
Spt. Chloroformi
Tinc. Gentian. Co. āā ℨiv
Liq. Arsenic. ♏ 24.
Aq. ad ℥vi M
Sig. ℨss after meals

Abdomen is rather full, quite soft, and not at all tender. The uterus is felt easily with its fundus midway to umbilicus. There is no tenderness over it or the ovaries on free palpation.
P.V. There is a tear in the perineum to within ⅔" of the rectum. Within the orifice there are several rough lacerated surfaces. The Os is felt low down, ragged, soft and admitting three fingers. In the lower half of the uterus the walls are very soft but no clots or remains of secundines are felt. Discharge is free and distinctly foetid.
Chest negative. Mammae flaccid and not tender.

25.12.95 Patient had a very good night, slept well and is now feeling comfortable. Temp. coming down, now 101°. Pulse slower but still soft. Respirations less rapid. Face more natural in colour.
Tongue cleaning, papillae slightly prominent. Throat less red. Rash less distinct than yesterday.
Discharge continues copious and very foetid.

26.12.95 Uterus curetted with douche curette with negative result as regards discovery of placental remains &c.

28.12.95 Patient's condition has greatly improved and she may now be considered as convalescent. Temp. has gradually fallen reaching normal yesterday.
From the day after admission she has expressed herself as feeling well. Pulse is slow, tongue moist &c.
The uterus is now just appreciable behind the pubis.
Discharge is much less, lighter in colour and still foetid. The rash has now almost entirely faded, some yellow staining remaining on the abdomen.

30.12.95 Patient continues to improve. Rash practically gone.

Uterus not palpable now. Discharge considerably lessened, light-coloured, not so foetid.
There has been a mid-day rise of temp. to 99.6° for two days, otherwise normal.

5.1.96 Practically no discharge now and no odour.
Temp. has been normal for past four days.
On No. 2 diet.

15.1.96 Desquamating freely on hands and trunk.

Feby. 24. 1896. Dismissed – Well.

This patient recovered very rapidly and felt well two days after admission; but when she came in, on the second day of her fever, she showed very distinctly the intensifying effect of the puerperal condition on the scarlatina. Another adult attacked by scarlet fever in a form becoming so soon mild would not have been greatly disturbed. But here there was great constitutional disturbance, – the patient depressed, the pulse weak and irregular and the face of a dusky livid hue such as is seen so often in puerperal fevers.

25. Throat steam-sprayed and swabbed 2 hourly.
Poultices to throat hourly.

℞ Quin. Sulph. gr. IV One every 4 hours.
Sod. Salicyl. gr. XV m

Case VII

Mrs. McCracken, aet 33.
20 Norfolk St.

Admitted December 25th.

Patient has had five children. She was delivered of a healthy child 9 days ago; the doctor said everything was normal. She remained well until the fifth day when she became feverish and restless, but had no pain. Next day and several times after, she was sick and vomiting. On the 7th day she was feeling rather better but on the 8th she was worse again and now she began to have sore throat and to be rather hoarse. She did not at any time notice a rash. Lochia were probably scanty although no estimate could be made as she was douched thrice daily. She did not notice any heavy odour.

On her fifth day her child, aged six, also sickened and was removed three days later to hospital with an undoubted attack of scarlet fever.

Condition on admission

Temp. 104°. P. 104. R. 30.

Patient is hot but does not look very ill. Her complexion has a slightly greyish tinge but there is plenty of colour in her face. Pulse soft, counted once to 120.

Throat much reddened and rather oedematous, secreting a good deal of mucus; its appearance is quite suggestive of scarlet. Glands not felt enlarged.

Tongue dry and slightly hacked, furred thinly brown on dark red; a few prominent papillae at the sides.

Rash. There is a slight blush round neck and on

28. Poultices stopped.
Brandy ℥ß every 2hrs. during day.

Sod. Salicyl. gr. XV, one every 2 hours.

P. Doveri gr. V given at 11 p.m. and 12·15 a.m.

arms; nothing anywhere else. Skin of legs shows no trace (such as small papules &c) of a faded eruption. Skin of trunk fairly normal.
Abdomen soft and natural. Uterus not made out but probably about size usual on 10th day.
No tenderness, even on firm pressure, over uterus and appendages.
P.V. No apparent lacerations of vagina. Os felt easily, pretty well up, freely fissured and soft, admitting one finger only. No tenderness anywhere.
Discharge is scanty, serous and whitish-yellow; its odour is not at all heavy.
For the past two days patient has suffered from cough and from a pain in her left side.
The chest is for the most part clear; over the seat of the pain complained of, just beneath junction of posterior axillary wall with chest wall, friction sound not very marked can be heard.
Breasts are full and hard.

28.12.95 Patient's condition has remained much the same since admission, if anything she feels weaker.
Tongue still dry, brown, and caked. Throat still red, raw, and congested, but rather moister.
Temp. runs from 102° to 103°. Pulse about 120, soft and weak. There has been almost no discharge.

10.P.M. After a restful night, patient complained at noon of pain ~~x~~ in her right wrist; it became swollen and painful during the afternoon.
By 7.30 p.m. the swelling had extended up the right arm to the shoulder. It was uniform and rather firm; at first colourless, there was latterly a red blush on the outer and upper arm. There was great pain on any movement. About this time

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patient began to complain of pain in the left wrist and elbow and in the left knee. There was no swelling on the left side but great agony on any movement.

29th. Dec. At midnight temp. was 106° and patient's position evidently critical, with breathing more hurried and irregular, pulse more rapid.
No abdominal or precordial pain. She had a cold affusion but stood it badly; temperature was reduced to 104·6°
Patient gradually sank and died at 2 a.m.
Within a few hours of death some red bloody discharge came away.
A post mortem examination was not permitted. ✓d

Although there was practically no rash seen, the condition of the throat and tongue and the close association with scarlet fever seem sufficient to warrant a diagnosis. The fatal termination came as a surprise, as the late onset of the scarlatina and the mildness of the symptoms seemed to warrant a good prognosis.
The pathology of this final stage seems obscure. It appeared too rapid and general to be the result of pyaemia and there was nothing else pointing in that direction. There was no precordial distress and nothing to point to thrombosis, while it was the joints in the first place which were affected.
Probably the condition was a rheumatic one.
(Braxton Hicks describes a case in some ways similar. On the third day of child-bed a woman developed fever, cause unknown, and on the fifth day typhoid symptoms set in, with swelling of the joints & delirium. She died that day.)

Case VIII

Mrs. Isabella Bishop, 31.
162 North St.

Admitted February 9th.

Patient's fifth confinement. Delivered fourteen days ago. Labour short and easy, forceps used for inertia. Remained in bed for a week. On the 8th day the doctor left her; she feeling quite well, suckling a healthy child, and the lochia coming away freely. Was up until 11th day, when she felt shivering ("heats & colds") a little headache, her throat a little dry and sore. No sickness or vomiting. On the evening of 12th day went back to bed feeling much fevered, throat only slightly sore. Rash first noticed that day. Next day the doctor said it was scarlet. Milk stopped in a day or two. Discharge never offensive, unaffected by fever.
Patient never had scarlet. One of her children was removed to hospital with scarlet-fever in October and came home two months later. A fortnight after another took it and was removed. She was not yet home when the mother took ill, but was due on 8th.
There was no change of bedding or turning out of clothing to account for the mother receiving a new dose of infection.
The infant is well.

Condition on admission.

Temp. 101·2°. Patient appears very seriously ill, in a weak, almost typhoid state; pulse weak, soft, and always about 140. Respiration rapid but easy. Throat slightly congested. Tongue dry, red, glazed and cracked, with much enlarged papillae.
Glands made out with difficulty.

12. Mag. Sulph. gr. 40 Three daily.
Liq. Strychn. m. V
14. Stopped for nausea.

23. Tinc. Digit. m. V Three daily.
" Ferr. Perchl. m. X
Ac. Phos. Dil. m. XV

25. Stopped.

Rash has been extremely copious and is now fading. On the trunk it consists mostly of yellow staining, on the limbs it is copious and darkred with an element almost petechial.
Desquamation has begun on face, chest, and flexor aspect of arms.
Abdomen soft and natural. No tenderness anywhere.
Fundus uteri ill-defined. Discharge scanty, yellowish, no bad odour.
Urine drawn off by catheter and found free of albumen.
Breasts flaccid.

10·2·96 Condition still suggests the typhoid state.
Tongue dry and papillae large and oedematous.
Temp. tonight 104°. Pulse not so bad.
Whisky at rate of ℥v in 24 hrs. Soda at pleasure.

11·2·96 Has been very sleepless; weakness great, but pulse fairly good.

12·2·96 Condition unchanged.

13·2·96 Had an enema with good result. Very thirsty and drinking freely.
Towards night her pulse became very feeble and thready and her breathing was rapid and shallow.
Her face had the drawn expression of impending death. Condition was altogether very unfavourable.
No pain complained of, no cough or cardiac distress; only great weakness.
Stimulant ℥x. Tinc. Lupuli ʒi given after which she slept an hour and half.

14·2·96 Rather better this morning but still very feeble.

20·2·96 Condition has steadily improved. Discharge only a stain after three or four days.
Temp. today a little raised, probably due to a boil over the sacrum.

March 7. Allowed up today. Desquamation has been very profuse. There have been no complications or sequelae.

April 8. Dismissed - Well.

This case illustrates various points of interest. Thus the pregnant woman was twice exposed to infection for a day or two, first in October and then in December. On neither occasion did she take it, but shortly after delivery it developed. This might seem a good instance of prolonged incubation but there are elements of doubt. Thus, a previous "return case" had occurred in the house and it may be that disinfection had been all along unsatisfactory.

The case was very unusual in the lateness of its onset. The great majority of cases develop within the first week and the most of these within the first three days.

In spite of this late onset the woman was very ill indeed. The scarlatinal symptoms would in another adult have betokened a mild case, and there seemed to be an entire absence of septic complications, but as a result of the mingling of the scarlatinal and the puerperal conditions a condition of extreme prostration was produced, so much so that for 24 hours she seemed to be dying.

April 22nd. 1895.

Case I.

Mrs Johnstone.

TEMPERATURE—FAHRENHEIT.

107° 106° 105° 104° 103° 102° 101° 100° 99° 98° 97°

On admission.

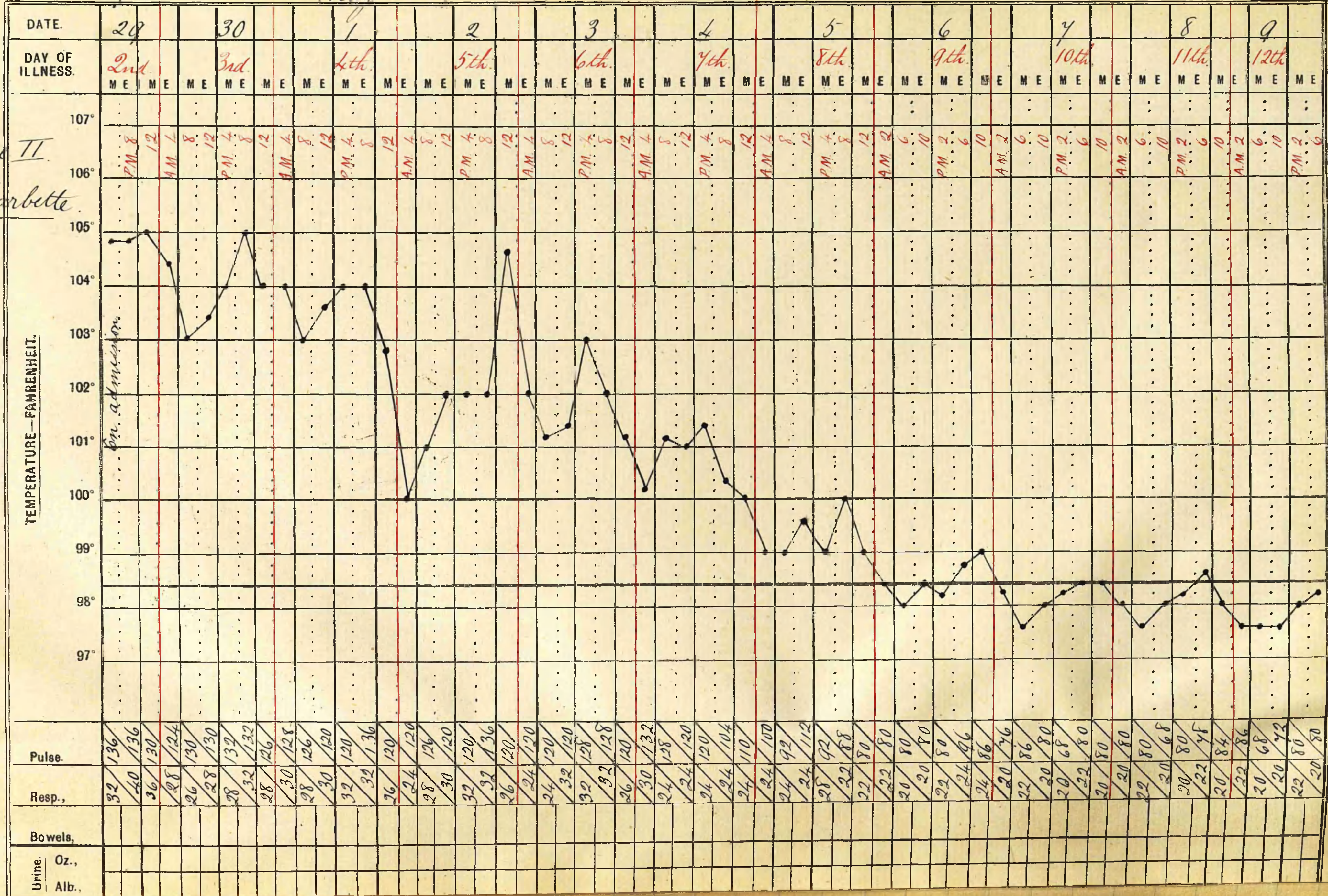
DATE.	DAY OF ILLNESS.	Time	Pulse.	Resp.,	Bowels,	Urine. Oz.,	Alb.,
22	3rd.	P.M. 8					
		12					
		A.M. 4					
23		8					
		12					
	4th.	P.M. 4	136	24			
		8	124	26			
		12	120	24			
		A.M. 4	126	26			
		8	120	22			
		12	120	24			
24	5th.	P.M. 4	112	24			
		8	110	20			
		12	116	22			
		A.M. 4	108	24			
		8	120	22			
		12	120	22			
25	6th.	P.M. 4	120	26			
		8	120	20			
		12	108	24			
		A.M. 4	96	20			
		8	98	20			
		12	98	20			
26	7th.	P.M. 4	90	22			
		8	96	22			
		12	96	20			
		A.M. 4	88	20			
		8	86	20			
		12	86	20			
27	8th.	P.M. 4	90	20			
		8	90	20			
		12	100	26			
		A.M. 6	86	24			
		10	84	20			
		P.M. 2	96	20			
28	9th.	6	84	22			
		10	92	22			
		a.m. 2	86	22			
		6	84	22			
29	10th.	10	84	20			
		P.M. 2	90	22			
		6	80	24			
		10	80	24			
		A.M. 2	68	22			
		6	68	22			
30	11th.	10	80	20			
		P.M. 2	80	20			
		6	80	22			
		10	80	22			
		A.M. 2	80	20			
		6	80	20			
May 1	12th.	10	84	22			
		P.M. 2	84	20			
		6	84	20			
		10	84	20			
		A.M. 2	80	20			
		6	84	20			
2	13th.	10	80	20			
		P.M. 2	80	22			
		6	88	24			
		10	86	28			

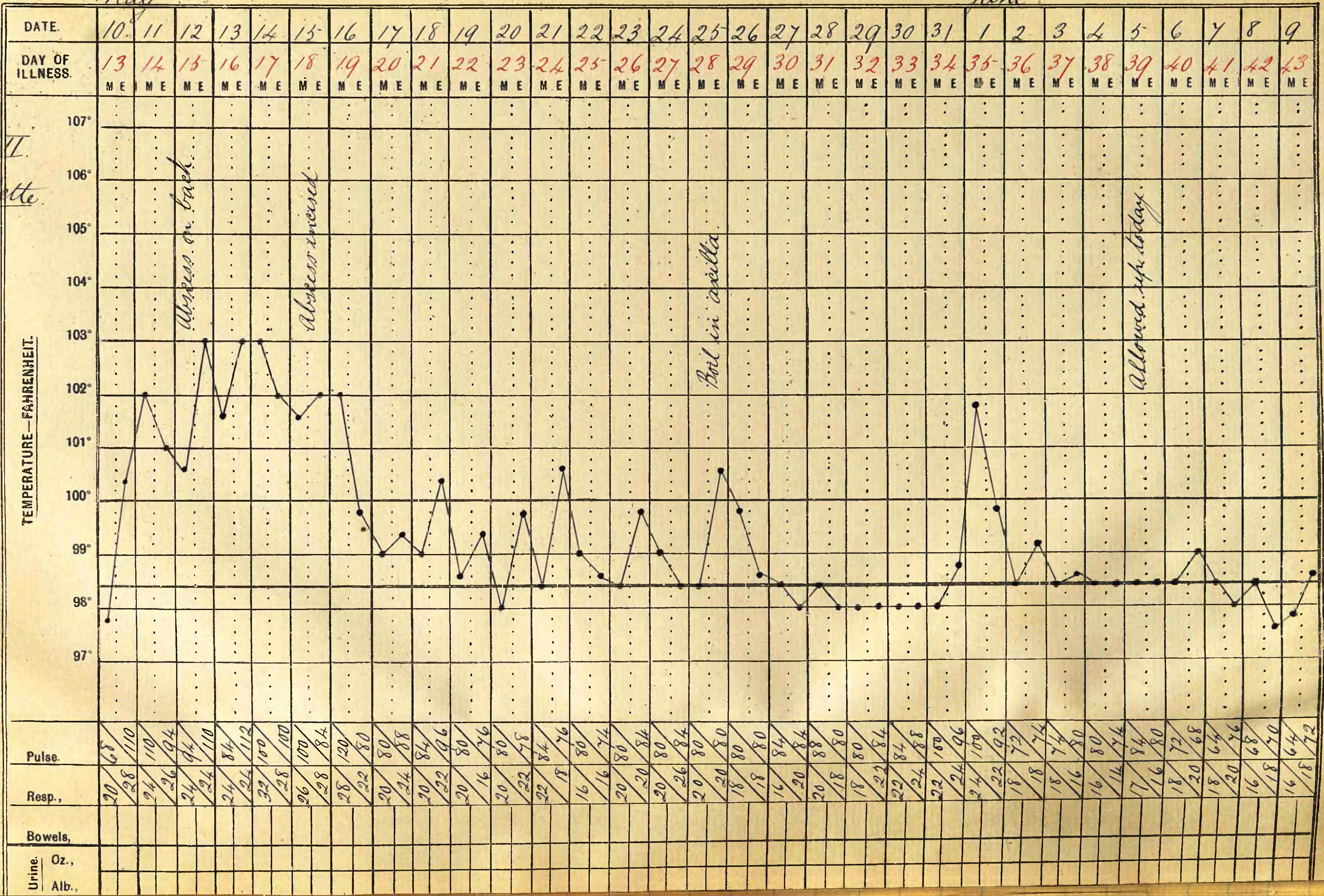
Case I
Mrs Johnstone
Contd

TEMPERATURE—FAHRENHEIT.

97° 98° 99° 100° 101° 102° 103° 104° 105° 106° 107°

DATE.	DAY OF ILLNESS.	Hour	Pulse.	Resp.,	Bowels.	Urine. Oz.,	Alb.
May 3	14th	A.M. 6	86	20			
		10	84	22			
3		P.M. 2	84	22			
		6	84	22			
		10	80	22			
		A.M. 2	86	22			
		6	84	20			
		10	86	22			
4	15th	P.M. 2	84	20			
		6	90	22			
		10	92	22			
		A.M. 2	86	20			
		6	86	22			
		10	84	20			
5	16th	P.M. 2	84	20			
		6	88	22			
		10	86	24			
		A.M. 2	84	20			
		6	82	20			
		10	80	20			
6	17th	P.M. 2	80	20			
		6	84	20			
		10	80	20			
		A.M. 2	84	22			
		6	80	20			
		10	80	20			
7	18th	P.M. 2	80	20			
		6	80	22			
		10	80	24			
		A.M. 2	82	22			
		6	80	22			
		10	80	22			
8	19th	P.M. 2	82	20			
		6	80	22			
		10	80	20			
		A.M. 2	68	20			
		6	80	20			
		10	80	22			
9	20th	P.M. 2	80	20			
		6	80	20			
		10	68	20			
			68	20			
Then normal until 32nd day.							
May 22	33rd		68	20			
			80	18			
23	34th		84	20			
			80	20			
24	35th		80	16			
			80	18			
25	36th		80	20			
			84	22			
26	37th		84	22			
			80	18			
27	38th		82	18			
			80	20			
28	39th		80	22			
			84	20			
29	40th		80	20			
			80	18			
30	41st		80	18			
			84	20			
Afterwards normal.							


Case II
Mrs. Garbette
April
May
DATE.
DAY OF ILLNESS.
TEMPERATURE—FAHRENHEIT.
107°
106°
105°
104°
103°
102°
101°
100°
99°
98°
97°
On admission
Pulse.
Resp.,
Bowels,
Urine. Oz.,
Alb.,


Case II.
Mrs. Garbette
Cont^d
May
June
DATE.
10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9
DAY OF ILLNESS.
13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43
M E
TEMPERATURE—FAHRENHEIT.
107° 106° 105° 104° 103° 102° 101° 100° 99° 98° 97°
Abscess on back
Abscess incised
Boil in axilla
Allowed up today
Pulse.
68/110 110/94 94/110 84/112 100/100 100/84 120/80 80/88 84/96 80/76 80/78 84/76 80/74 80/84 80/84 80/80 80/80 84/84 88/80 80/84 84/88 100/96 100/92 72/74 74/80 80/74 84/80 72/68 64/76 68/70 64/72
Resp.,
20/28 24/26 24/24 24/24 32/28 26/28 28/22 20/24 20/22 20/16 20/22 22/18 16/16 20/20 20/26 20/20 18/18 16/20 20/18 18/22 22/24 22/24 24/22 18/18 18/16 16/14 17/16 18/20 18/20 16/18 16/18
Bowels,
Urine. Oz., Alb.,

Case III

Maggie Braiden

TEMPERATURE—FAHRENHEIT.

DATE.	April 30					May 1				2
DAY OF ILLNESS.		2nd				3rd				4th
Hours	P.M. 6	8	10	12	A.M. 2	4	6	8	10	12
Hours (cont.)	P.M. 2	4	6	8	10	12	A.M. 2			
Notes	On admission					Operation				Died at 3 a.m.

Cell	Pulse.	Resp.,
1 M	126	40
1 E	120	40
2 M	120	40
2 E	132	32
3 M	132	30
3 E	132	34
4 M	134	32
4 E	120	28
5 M	122	28
5 E	128	28
6 M	128	28
6 E	154	30
7 M	154	36
7 E	88 irregular	30
8 M	88 & intermitt.	30
8 E	86 "	30
9 M	84	32
9 E	not felt	40

Temperature scale: 97° 98° 99° 100° 101° 102° 103° 104° 105° 106° 107°

Bowels, | Urine. Oz., Alb.,

Case IV

Mary Hunter.

May

TEMPERATURE—FAHRENHEIT.

107° 106° 105° 104° 103° 102° 101° 100° 99° 98° 97°

P.M. 6 · 10 · A.M. 2 · 6 · 10 · P.M. 2 · 6 · 10 · A.M. 2 · 6 · 10 (repeated daily) … P.M. 2 · 6

On admission

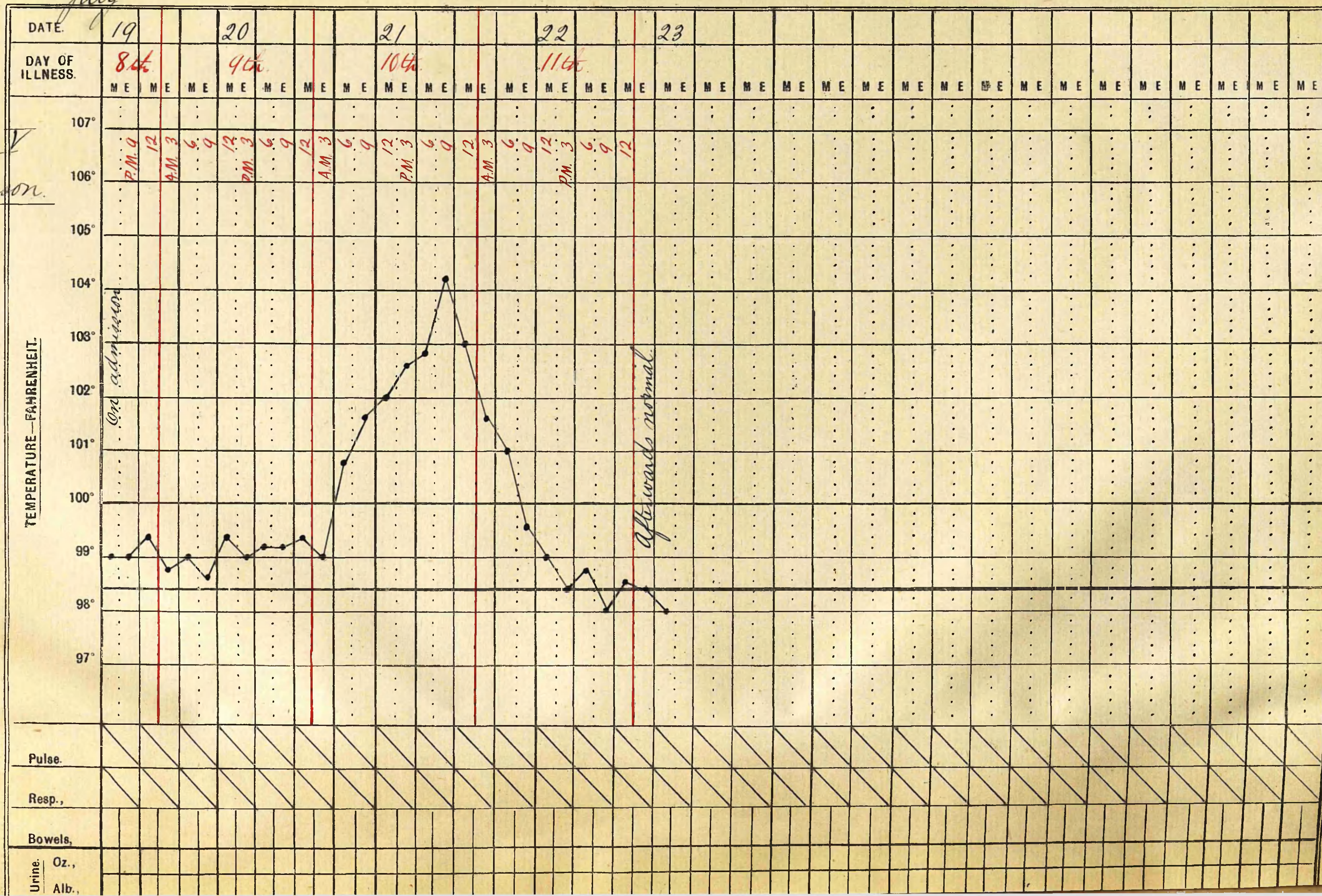
Afterwards normal

DATE.	DAY OF ILLNESS.	Pulse.	Resp.,
21	3rd	106 / 106	35 / 28
		111 / 108	32 / 36
		120 / 104	32 / 32
22	4th	104 / 106	35 / 32
		96 / 100	38 / 36
		96 / 96	34 / 39
23	5th	92 / 90	38 / 32
		92 / 88	28 / 32
		90 / 86	27 / 32
24	6th	96 / 108	32 / 29
		88 / 84	36 / 32
		88 / 80	32 / 30
25	7th	86 / 92	22 / 26
		84 / 92	32 / 30
		84 / 88	26 / 28
26	8th	80 / 100	26 / 28
		84 / 80	28 / 26
		86 / 98	28 / 34
27	9th	94 / 96	28 / 26
		88 / 88	24 / 28
		80 / 84	26 / 28
28	10th	92 / 96	30 / 26
		94 / 94	26 / 26
		74 / 80	24 / 30
29	11th	100 / 114	28 / 32
		104 / 94	34 / 34
		96 / 92	32 / 28
30	12th	87 / 104	27 / 32
		104 / 88	32 / 28
31	13th	84 / 80	28 / 32
		92 / 84	28 / 28

Bowels,

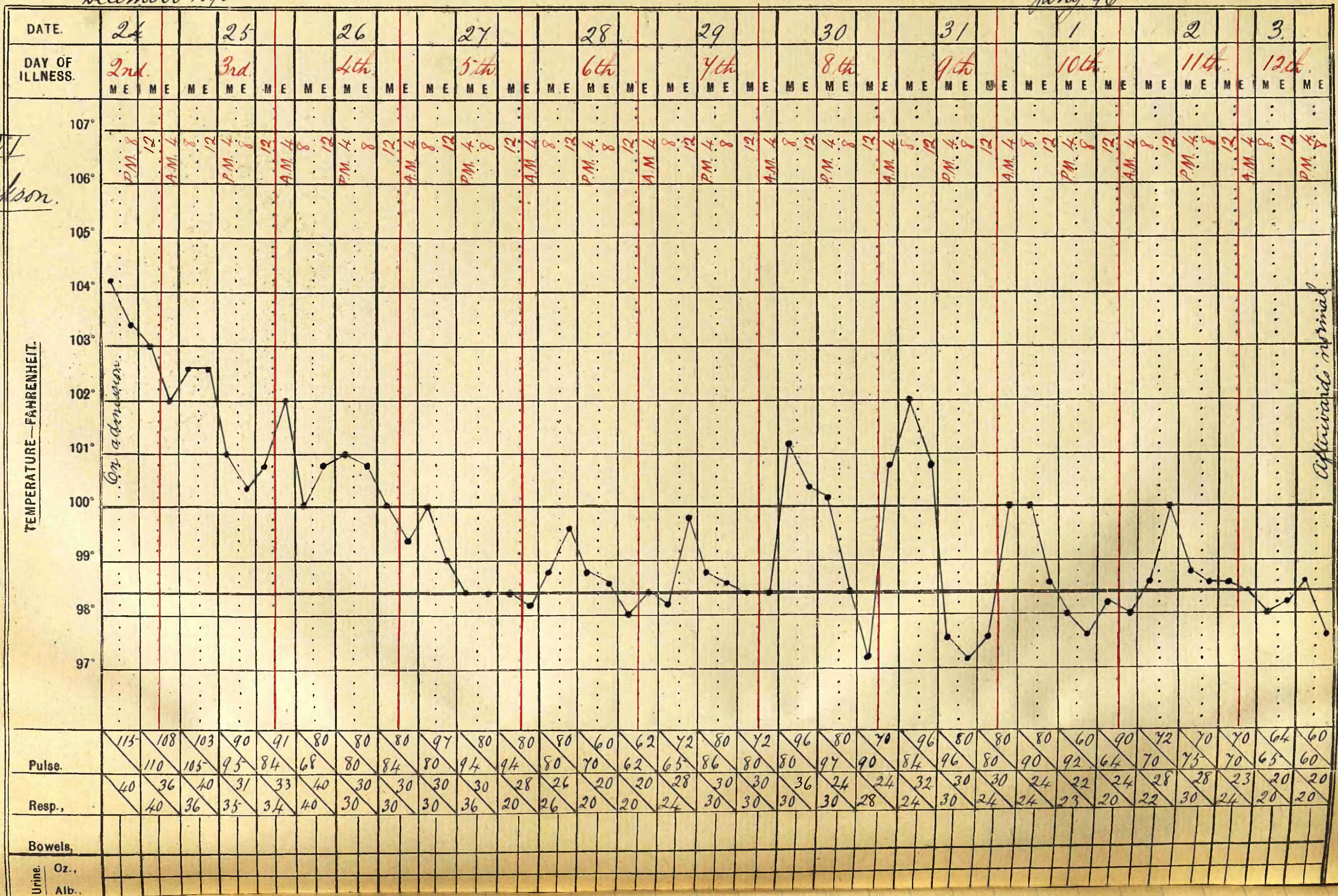
Urine. Oz., Alb.,

Case V
Mrs. Thomson.



Case VI

Mrs. Dickson.



December 1895.

March

Case VII

Mrs. McCracken.

DATE.	25		26		27		28			29
DAY OF ILLNESS.	? 4th		5th		6th		7th			8th

TEMPERATURE—FAHRENHEIT. (107° – 97°)

Times entered: P.M. 8, 12, A.M. 4, 8, 12, P.M. 4, 8, 12, A.M. 4, 8, 12, P.M. 4, 8, 12, A.M. 4, 8, 12, P.M. 4, 8, 10, 12, A.M. 1

On admission

Died at 2 a.m.

Pulse.	100 / 100	96 / 98	98 / 104	115 / 100	120 / 115	120 / 120	120 / 120	120 / 126	128 / 120	128 / 124	130 / 130	130
Resp.,	30 / 30	28 / 30	36 / 30	36 / 33	30 / 30	30 / 30	30 / 32	36 / 32	28 / 32	33 / 34	38 / 38	40
Bowels,												
Urine. Oz.,												
Urine. Alb.,												

Case VIII
Mrs. Bishop